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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/037,486	12/19/2001	Benny W. Chow	130109.417	5218

500 7590 09/29/2003

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SEATTLE, WA 98104-7092

EXAMINER

TRAN, HIEN THI

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 09/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/037,486

Applicant(s)

CHOW ET AL.

Examiner

Hien Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-75 is/are pending in the application.
- 4a) Of the above claim(s) 21-75 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-75 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I, species 1, claims 1-20, in Paper No. 7 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 21-74 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 7.

Drawings

3. The drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the drawings to comply with CFR 1.84(p)(5), e.g. they should include the reference sign(s) mentioned in the specification and vice versa.

Specification

4. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-2, 5-6, 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Shioiri et al (5,026,536).

Shioiri et al discloses an apparatus comprising: a first bed having an inlet for receiving a hydrocarbon stream and comprising a metal oxide (col. 3, lines 51-60); a second bed downstream of the first bed (col. 3, lines 62-68); and a third bed comprising copper-zinc adsorbent and being located downstream of the first bed (col. 4, line 21). Shioiri et al further discloses provision of heating means for heating at least one of the fuel stream and the beds (col. 3, lines 32-35).

Instant claims 1-2, 5-6, 19-20 structurally read on the apparatus of Shioiri et al.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 1-6, 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor, Jr. et al (5,882,614) in view of Shioiri et al (5,026,536).

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With respect to claims 1-6, 19-20, Taylor, Jr. et al discloses an apparatus comprising: a first bed 46 having an inlet for receiving a hydrocarbon stream and comprising a metal oxide (zinc oxide); a second bed 52 downstream of the first bed 46; and a third bed 84 comprising zinc adsorbent and being located downstream of the first bed. Taylor, Jr. et al further discloses provision of heating means 42 for heating the fuel stream and inherently heating the beds.

The apparatus of Taylor, Jr. et al is substantially the same as that of the instant claim but is silent as to the specific type of the adsorbent in the third bed.

However, Shioiri et al discloses the conventional of providing adsorbents for adsorbing sulfur-containing compound including zinc oxide adsorbent, copper-zinc adsorbent, etc .

It would have been obvious to one having ordinary skill in the art to alternately select an appropriate adsorbent for the adsorbent bed of Taylor, Jr. et al for the known and expected result in obtaining the same result in the absence of unexpected results.

10. Claims 7-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor, Jr. et al (5,882,614) in view of Shioiri et al (5,026,536) as applied to claims 1-6 and 19-20 above and further in view of Voecks et al (5,057,473), Nieskens et al (4,673,557) and van der Wal et al (4,478,800).

The modified apparatus of Taylor, Jr. is substantially the same as that of the instant claims, but fails to disclose whether more than one bed may be provided for each first, second and third.

However, Voecks et al discloses that more than one adsorbent bed may be provided for further purifying the gas (col. 5, lines 31-35).

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide more than one element as taught by Voecks et al in the modified apparatus of Taylor, Jr. et al, so as to completely remove all sulfur in the gas and since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Nieskens et al and van der Wal et al show the conventionality of providing adsorbent beds connected in parallel so as to disconnect one bed during operation while the other remains in service.

It would have been obvious to one having ordinary skill in the art to provide the second of each type of bed in parallel as taught by Nieskens et al and van der Wal et al in the modified apparatus of Taylor, Jr. et al so as to facilitate the regeneration of one bed while maintaining the other in service.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hien Tran whose telephone number is 308-4253. The examiner can normally be reached on Tuesday-Friday from 7:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (703) 308-6824. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0661.

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Hien Tran

HT

September 28, 2003

Hien Tran

Primary Examiner

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